

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 02/14901

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C03B37/027 C03B37/029

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C03B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

PAJ, WPI Data, EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2001/046358 A1 (SASAOKA E ET AL) 29 November 2001 (2001-11-29) paragraphs '0014!', '0039!', '0056!', '0058!', '0066!', '0069!; figure 4	1
X	EP 0 729 919 A (SUMITOMO ELECTRIC IND LTD) 4 September 1996 (1996-09-04) column 15, line 26 -column 16, line 9; figures 6,9,13; example 2 --- -/--	1



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

3 September 2003

Date of mailing of the international search report

10/09/2003

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GALTAROSSA A ET AL: "OPTIMIZED SPINNING DESIGN FOR LOW PMD FIBERS: AN ANALYTICAL APPROACH" JOURNAL OF LIGHTWAVE TECHNOLOGY, IEEE. NEW YORK, US, vol. 19, no. 10, October 2001 (2001-10), pages 1502-1512, XP001115815 ISSN: 0733-8724 page 1502, paragraphs 1, INTRODUCTION; examples V, A page 1509, paragraphs VI, A -----	1
A	EP 0 582 405 A (AT&T CO) 9 February 1994 (1994-02-09) cited in the application column 6 -----	1
A	US 6 240 748 B1 (HENDERSON D L ET AL) 5 June 2001 (2001-06-05) cited in the application abstract; figures 13, 14 -----	1
E	EP 1 325 894 A (FITELE USA CORP) 9 July 2003 (2003-07-09) column 4, paragraphs 17, 18 column 6, paragraph 23 -column 8, paragraph 32 column 9, paragraph 36 -----	1

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Present claims 1-7 relate to a method defined by reference to a desirable result or effect to be achieved, namely at least 50% detorsion, without any limits on the process variables to be manipulated to achieve the desired effect.

The claims cover all methods achieving this result or effect, whereas the application provides support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT for only a very limited number of such methods. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the method by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible.

In addition, present claims 1-7 relate to a method where the result to be achieved is defined inter alia

by reference to the parameters: spin function frequency, viscous zone length and draw speed in an undefined relationship (see claim 1), and also the parameters maximum applied torsion, spin function amplitude, maximum frozen-in torsion, the ratio R (see claim 7).

The use of these parameters in the present context (see above re desideratum) is considered to lead to a lack of clarity within the meaning of Article 6 PCT. It is impossible to compare the parameters the applicant has chosen to employ with what is set out in the prior art. The lack of clarity is such as to render a meaningful complete search impossible.

Consequently, an incomplete search has been carried out for methods comprising the steps a) to d) defined in claim 1 and focussing on prior art disclosing (explicitly or implicitly) a relatively long viscous zone length when drawn at high rate, or slow draw rate in combination with a standard viscous zone length, or documents disclosing the number of spins/length either applied to the fibre or remaining in the fibre when cooled. It should be noted, that given the present definition of the claims and the disclosure of the application provided in the description (in particular the limited disclosure in respect of how to vary the viscous zone length L of a given draw furnace), that such a search may not be considered complete and that an additional search may well be required later in the procedure (e.g. in the regional phase) should explanations be forthcoming from the applicant.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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EP 1325894	A	09-07-2003	US 2003128942 A1 EP 1325894 A2 JP 2003195085 A	10-07-2003 09-07-2003 09-07-2003